Title (en)

Catalyst and process for alkylene oxide polymerization.

Title (de)

Katalysator und Verfahren zur Polymerisation vom Alkylenoxid.

Title (fr)

Catalyseur et procédé pour la polymérisation d'oxyde d'alkylène.

Publication

EP 0239973 A2 19871007 (EN)

Application

EP 87104693 A 19870330

Priority

US 84598686 A 19860331

Abstract (en)

A dispersion is produced by reacting a hydrocarbyl cpd. RxM, R=1-8C alkyl, unsubstd. or alkyl-substd. phenyl or naphthyl, 4-6C cycloalkyl, dicyclopentadienyl; M=Zn, Al; x=the valency of M, with a 2-6C linear alkylene polyol or a 5-6C cycloalkane diol in contact with finely divided metal oxides of SiO2, MgO and Al2O3 as dispersion aid and a non-ionic surfactant in an inert medium. Pref. the dispersion aid is fumed MgO, fumed Al2O3 or fumed TiO2 with an average particle size of less than 10 nm. A catalyst may be produced by reacting a Zn cpd., R2Zn where R is as specified above, with the polyol or diol in contact with fumed SiO2 dispersion and non-ionic surfactant in an inert solvent at a teaction temp. of 0-40 deg.C, the autogenous b.pt. of the reaction mixt.. The fumed SiO2 has a surface area of 10-600 sq.m/g BET/N2. The inert medium is a hydrocarbon e.g. hexane or isopentane and the surfactant is selected from (i) n-CmH2m+1C6H4O(CHR'"CH2O)xH, (ii) n-CmH2m+1O(CHR"CH2O)xH, (iii) (n-CmH2m+1)2NH or (iv) where x=2-20; m=4-18; y=12-20; R"=H, at least 1C alkyl; and the surfactant being the 4-mole-ethylene-oxide (EO) adduct of n-nonyl phenol, the 10-mole-EO-adduct of n-nonyl phenol, di-n-octylamine or cpd. (iv) above. The Zn cpd. is diethyl Zn and the alkane diol is 1,4-butane diol, diethylene glycol, 1,60hexanesdio1,6-hexane diol or ethane diol. The compsn. may be in the form of a dixpersion, dry powder or shaped article. Polyalkylene oxides, esp. polyethylene oxide (PEO), polypropylene oxide (PPO) or EO/PO copolymer, may be produced by contacting a cyclic oxide, R'=H or thyl, with the catalyst. Solid alkylene oxide polymers are produced under relatively low pressure by polymerising in a fluidised bed below the fusion temp. of the polymer, by contacting the cyclic oxide, EO or EO and PO, with fluidised catalyst particles supported on a carrier or unsupported.

IPC 1-7

B01J 31/12; C08G 65/12

IPC 8 full level

C08G 65/02 (2006.01); **C08G 65/12** (2006.01)

CPC (source: EP)

C08G 65/12 (2013.01)

Cited by

JP2016535143A; JP2016536404A; WO2015077210A1; US2018326067A1; CN105705552A; US6084059A; EP0990657A4; US10842750B2; US8871973B2; US10064945B2; US10154966B2; US10300141B2; US9624343B2; WO2015077208A1; US10080721B2; US10449547B2; US9925146B2; US10493033B2; US10624862B2; US9655853B2; US10695297B2; US9636303B2; US9872835B2; US10130591B2; US9447237B2; US11224576B2; US9416226B2; US10201502B2; US10864164B2; EP3680272A1; WO2020144293A1; WO2015077211A1; US9879115B2; US9938374B2; US10329382B2; US10335373B2; US9675610B2; US9737490B2; US9750701B2; US9855263B2; US10369109B2; US10729658B2; US6979722B2; WO2013167735A1; US9629807B2; US10058548B2; US10675278B2

Designated contracting state (EPC)

AT BE CH DE FR GB IT LI LU NL SE

DOCDB simple family (publication)

EP 0239973 A2 19871007; **EP 0239973 A3 19891108**; AU 7077287 A 19871008; BR 8701434 A 19871229; JP H0474369 B2 19921126; JP H05310908 A 19931122; JP H0655811 B2 19940727; JP S62232433 A 19871012

DOCDB simple family (application)

EP 87104693 A 19870330; AU 7077287 A 19870330; BR 8701434 A 19870330; JP 14678792 A 19920514; JP 7458487 A 19870330